CURRICULA CONNECTIONS

**SCIENCE**: THE FOLLOWING ARE EXTENSIONS FOR TEACHING THE CONCEPTS IN ENVIRONMENTAL SCIENCE THAT RELATE TO FAUNA AND WILDLIFE CONSERVATION:

**ECOLOGY/BIOLOGY: What conservation projects can engage students in learning activities that promote action and interaction?**

* Investigate the fauna that exists in selected areas of interest throughout the US and the International Community. Focus on the status of species and create projects to present the results. Exchange information and artifacts with students in other areas of the country or in environments such as the Arctic, the Amazon or the Rocky Mountains.
* Create a Predator-Prey Column according to directions in *Bottle Biology,* an instructional materials development program funded by the NSF and administered by the University of Wisconsin-Madison.

**EARTH SCIENCE: What types of soil and organisms that live in them can students identify?**

* Conduct soil studies in a habitat for Earth Science to determine the soil type and to identify species that adapt to those environments.
* Create a Sedimentation Bottle or Soil Column according to directions in *Bottle Biology,* an instructional materials development program funded by the NSF and administered by the University of Wisconsin-Madison.
* Study the effects of soil pollution or the difference between plants watered with water and those watered with fertilizers. http://www.pollutionissues.com/Re-Sy/Soil-Pollution.html

**CHEMISTRY: What are the factors that affect the status of a habitat or environment? What are the effects of salt infiltration from runoff on flora and fauna?**

* Build a Fermentation Chamber, make a Ph Indicator and Perform an osmosis and density experiment according to the directions in *Bottle Biology,* an instructional materials development program funded by the NSF and administered by the University of Wisconsin-Madison
* Analyze the pH levels, oxygen and carbon dioxide levels to determine the status of a habitat or in a Bottle Biology experiment and subsequently, development and execute a plan to modify conditions for optimum survival.
* Build a Terraqua Column according to directions in *Bottle Biology,* an instructional materials development program funded by the NSF and administered by the University of Wisconsin-Madison.

**ENVIRONMENTAL SCIENCE/SOCIAL ISSUES: What are the adverse effects of pollutants on the flora and fauna of an environment? What are the pros and cons of wildlife management practices?**

* Conduct an oil spill experiment to test clean-up materials and to rate their effectiveness. Relate the findings to current events to track the procedures used in oil-spill clean-up and to chart their progress. <http://resources.yesican-science.ca/trek/galapagos/oil7.html>
* Research and report current ideas on the effects of global warming and create a plan that can be implemented locally to appreciate what must be done globally to alleviate the problem.
* Conduct a debate on local events to draw conclusions on the validity of habitat management such as the shooting of deer in Tyler Park in Bucks County to control the population in relationship to the carrying capacity of the area.
* Conduct a Trial -By -Jury exercise in which students can role play to present the process of enforcing environmental legislation. The Exxon Valdez or other oil spills are scenarios that could be used to determine who is to blame for the devastation to wildlife that ensues.

**TECHOLOGY:** THE FOLLOW ING ARE SUGGESTIONS FOR INCORPORATING TECHNOLOGY INTO PROJECT-BASED ASSESSMENT: **How can Web 2.0 Tools be used to create maps related to ecology and environmental concerns?**

* Use “Google Earth” slide to create a map on which to mark the location of local fauna.
* Research environmental concerns that affect wildlife and use Google Earth to create a map and mark the locations of area affected: <http://www.scribblemaps.com/#lat=42.314111&lng=-83.036825&z=3&t=Map&y=0&p=0> http://library.thinkquest.org/26026/Environmental\_Problems/environmental\_problems.html

**ENGINEERING:** THE FOLLOWING ARE IDEAS FOR INCLUDING ENGINEERING CONCEPTS INTO THE STUDY OF BIRDS: **How can the principles of design and building be applied to ecology projects and environmental concerns related to wildlife?**

* Incorporate the principles of flight to create paper birds that fly; making modifications to the design to improve performance.
* Design ways to clean up oil spills and other pollutants to provide cleaner environments for flora and fauna by holding an “Invention Convention,”

<http://www.eduplace.com/science/invention/overview.htm>

* Locate and mark areas of erosion on a map of a local area and development methods to alleviate it.

**MATH:** THE FOLLOWING ARE EXTENSIONS FOR INCORPORATING MATH CONCEPTS INTO THE TEACHING OF SCIENCE: **What activities can support mathematical concepts and skills related to statistics and identification of species within a selected habitat?**

* Create Venn diagrams to compare species of animals in the selected area.
* Create a map to scale that covers the area of study to identify and mark locations of local fauna
* Create grid drawings to depict images of local fauna.
* Create paper birds that fly using measurement and folding techniques
* Graph levels of oxygen, Ph and other factors of a habitat that affect the well being of its flora and fauna

**CULTURAL:** THE FOLLOWING ARE SUGGESTIONS OF PROJECTS THAT EMPHASIZE THE IDEAS OF CULTURES THROUGHOUT THE WORLD:

**What type of problems do fauna in tropical forests encounter as a result of human influence?**

* Research the status of tropical forests and create a Tropical forest Ecocolumn according to directions in *Bottle Biology,* an instructional materials development program funded by the NSF and administered by the University of Wisconsin-Madison.

**What type of projects can be created to depict the wildlife that lives in areas throughout the world?**

* AFRICAN

*Kiisi* soapstone carvings can be simulated by using selected implements and bars of soap to create the likenesses of animals found in the local environment.

* ASIAN

*Jian Ahi* paper cuttings can be simulated by using templates to create likenesses of local fauna.

*Paper Making* of Chinese, Japanese and Aboriginal origin can be created in the classroom through the use of equipment easily obtainable.

* HISPANIC

*Amate* or Mexican bark painting using bark or paper to simulate this Latin American folk art.

*Papel Picado* meaning “Punched” or “perforated” paper is the traditional cut paper folk art common in Mexico and other Latin American countries.

* NATIVE AMERICAN

*Pictographs* can be simulated using brown paper and paints to create animal drawings by the process of applying pigments to rock surfaces.